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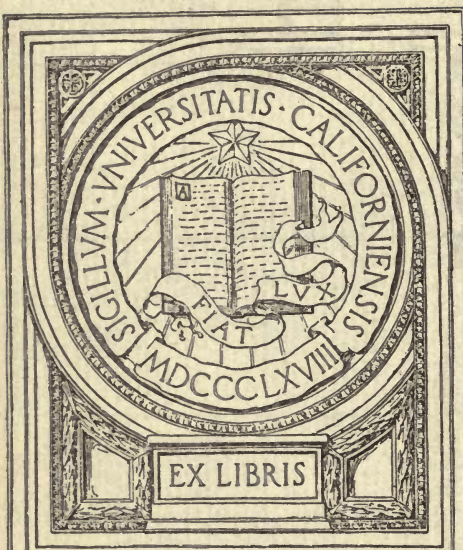
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THE TALKING TREES

by

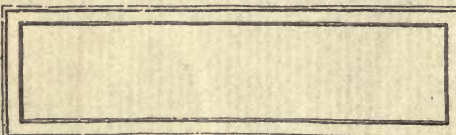
James Lawler

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THE TALKING TREES

AND

CANADIAN FOREST TREES



OTTAWA

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1921

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THE TALKING TREES

By James Lawler, B.A.

It was a wintry night and as the teacher and pupils of a school in one of the Prairie Provinces of Canada had long gone home the school-room began to feel lonely. The teacher had been telling how many persons near and far worked to provide what the pupils would find on the supper table when they went home; how the tea came from China, or India, the sugar from Cuba, and so on; and this had awakened in the school-house a desire to know more about its members. The Stove which stood in the middle of the school-room being made of metal out of a mine was curious to know the story of the different trees from which the fittings and furniture of the school-room were made. So, first, it addressed the White Pine in the door and asked it to tell the story of its life. The White Pine, proud of coming from one of the finest tree families, was not slow to respond.

"I was born on the north shore of the lake of the Woods near the boundary line between the provinces of Manitoba and Ontario. This is the western boundary of the White Pine country, which stretches eastward and southward from the lake of the Woods. We have, however, many cousins growing in British Columbia. I grew near the beautiful lake and when I was a little thing, not taller than a man, I

frequently saw the Indians passing in their birch-bark canoes. Later the fur-traders passed by in their journeys between Fort William and Fort Garry. By that time I had grown to be a large tree and my topmost bough waved over 130 feet above the ground. In those days timber was not needed so much as it is now. The Indians wanted birch bark for their canoes, poles for their wigwams, and dead branches to burn; and the fur-traders did not require much more. They used logs for building their trading-posts and wood for their fires, and occasionally they built a wooden boat but they did not need more, and they did not want the forest to disappear, because in it lived the beaver, the marten, the bear, the fox, and the other animals which produced the furs in which these men traded. If the forest disappeared they knew their trade would disappear also.

"After a good many years there came men with queer spy-glasses and bright steel chains and measuring tapes. They measured a straight line through the forest and drove in stakes at every measuring point. Then in a year or two came men with axes, and picks, and shovels, and before we old trees had time to turn this over in our minds the railway was built and the trains were rushing past.

"Then indeed came a new day for the forest. The railway company needed trees for its station-houses and its bridges, and many thousand trees were used for sleepers or cross-ties—the pieces of wood to which the steel rails are spiked—and soon the axe strokes were ringing in the forest all day long. When that work was completed we breathed freely again for we thought all danger was past, but

soon we saw carloads of logs and boards going along the railway, always going westward, and we heard that they needed lumber for building houses and schools and churches in the prairie country. At first the news filled us all with horror, but after thinking over it a while the older trees saw that it was what we had been growing for all these years. When we were saplings and half-grown trees we did not want to be cut down. We wanted to go on living simply for the joy of it, but we always had this thought that we were created for some purpose, and that we wanted to live till that purpose was accomplished. As we saw big trees die of old age, or insect attacks, or go down in a wind-storm, we felt that this was not the end for which we were created. It was not for this we wanted to live on. It was not because we wanted to die of old age that we shuddered when the Red Demon killed our brothers and threatened us."

At this such a shudder passed over the school-room—floor, wainscot, and desks—that the whole building shook. This sudden evidence of fear so startled the Stove that he asked who this Red Demon was, but the White Pine replied that the Stove would learn before the night was over and went on with its story thus:—

"When I saw the railway and the houses and schools I realized that the end of my existence was not to fall and rot away but to be changed into something useful. My brothers and cousins realized this also, and all we were now anxious for was that we might be chopped down and taken away before the Red Demon devoured us. One summer day I realized that it was just 150 years since I pushed up

through the ground, looking almost like a tiny blade of grass"—

"Hold hard!" said the Stove, "aren't you drawing the long bow there? Do trees ever live so long? And if you say you do, how can you prove it? You haven't got a birth certificate and so we have only your word for it. Ha, ha!" and the Stove laughed at his own cleverness. He was surprised that the desks and the wainscot did not see the point and laugh with him, and just then the White Pine answered his question.

"If you knew anything about trees" he said, "you would know that every tree always keeps its birth certificate, and always knows how old it is. Every year we put on a new layer of wood under our coats—that is under our bark—and each new layer is separated from the older one by a darker, firmer ring of wood. If you look at the stump of a tree that has been sawn or chopped down, or at the end of a log, you will see that the whole tree is made up of rings of wood one outside the other, and if you count the rings from the centre of the tree to the bark you will know exactly how old it is; for one ring, no more and no less, is added each year to the growing tree."

"I beg your pardon," said the Stove humbly, "I had no idea trees were such wonderful creatures. Pray proceed with your history."

"That winter, after the summer in which I attained my 150th birthday," continued the White Pine "men came with axes and felled me and hundreds more of my White Pine brothers, and after cutting us up into logs with saws, they dragged us out with horses to the ice of the lake. In the spring the

ice melted and we were soon all rolling and pitching about in the lake. We were joined by many hundreds more which had been laid on the ice of a little river running into the lake and floated down when the spring freshet came. Presently a little puffing tug came and we were all towed across a part of the lake to a big saw-mill. The men who brought the logs down the river and who placed us in booms to be towed by the little tug were called 'river-drivers' and a jolly, lively set they were. They could walk on a log rolling in the water as easily as another man could walk along that log when lying on the solid ice. Everywhere I have been we trees that were cut down have always been providing work for busy, happy men; and for this work they received wages which provided food and clothing for their families, their wives, and their boys and girls."

"Well!" said the Stove rather defiantly, "however much you trees are needed above ground, and however much prosperity you may bring there, you are not needed underground. The mines can get on without you."

"Not at all" said the White Spruce warmly. "Every ton of iron ore that is mined requires half a cubic foot of wood for props and every ton of coal requires nearly one and a quarter cubic feet for props. So you see, Mr. Stove, if my brothers had not gone down into the dark mine you never could have come up to daylight."

"Don't let us interrupt White Pine," said the Stove, anxious to change the subject.

"When we reached the saw-mill," resumed the White Pine, "we were quickly sawn up into boards, and after we had seasoned one winter in great piles

in the yard we were put on railway cars and taken to a large city where in a woodworking factory I was made into this door and brought to this school-house, where I have a very honourable and useful post. As long as I live I shall always be useful to mankind and that is the true end of a tree."

"But are you not a disappearing race?" asked the Stove rather ungraciously. "Will not the farmer soon be sowing wheat where the last remaining forests now stand?"

"No!" said the White Pine warmly, "a thousand times no; two-thirds of Canada will never be ploughed by farmers. It is not suitable for farming. The soil is too sandy, or too hilly, or too rocky. If the trees are burned off until no trees and no tree seeds are left, that land will be a desert forever, like the great deserts in China. But if the young trees are protected from fire, when the old ones are cut down, that part of Canada will go on producing the finest kinds of trees, trees which the people of Canada need, trees for which the people of the whole world are holding out their hands."

"Let us hear now from this tree that knows all about mining," said the Stove rather tartly. At this the White Spruce in the wainscot spoke up and said:—

"I remember falling as a little seed one autumn day on a certain hill, north of the prairie country. I will not describe it more closely than that. I am not so old as White Pine over there, because when the axe-men came to cut me down I was just a little more than one hundred years old. There was no river or lake near us, so that when we were cut down we were not drawn on to the ice to wait for spring,

but after being cut into logs we were loaded on large sleighs. There were ten of these sleighs all joined together in a train, and at the head there was not a tug-boat but there was a Puffing Billy of a steam engine, a snow locomotive with runners in front and large wheels with spikes in them behind. When we were all in place the driver started the engine and away we went just like a railway train over the hard snow road. It took us two days to reach the saw-mill and on the way we passed other steam logging trains going back to the hills with sleighs altogether empty or else partly filled with supplies for the lumbermen.

"This went on until spring, more and more logs being added to the piles as the days grew longer. When spring came we found we were all on the ice of a big pond, and soon we were floating in the water and being pushed along by men with pike-poles to the mill. We were cut up like other logs by the big shining saws, and after being smoothed down in the planing-mill I was brought here and built into this school."

"Didn't the Red Demon get you?" asked the Stove with a sneer.

"No, I escaped," said the White Spruce, "but he killed many thousands of my brothers. I saw their graves as we were going to the saw-mill."

"So you do consent to be made into boards, besides propping up the roofs of iron-mines and coal-mines?" asked the Stove who was not yet out of his ill-humor for being corrected on this point.

"Yes and do not forget me," piped up a School Reading Book, which was lying on a desk near the Stove. "I am made from Spruce also.

My big brothers were made into lumber or mine-props, but because I was small they ground me and bleached me and beat me and rolled me flat and shiny between great rollers and called me paper and here I am helping to educate the world."

"That is most astonishing," said the Stove, almost taken off his feet by this outburst. "But I begin to feel contempt for your Red Demon for I see that it is nothing but Fire. And what do I care for Fire? Do I not eat Fire every day? Do I not cause Fire to warm the teacher and the pupils? He is my servant, why should I fear him?"

"True!" said the Douglas Fir in the floor, "Fire is a good servant but a bad master. Even you, with all your bold talk, friend Stove, are not always able to master him. Look at that crack in your side, which he gave you last winter. I hope it will not grow larger for if hot coals should drop out on me then we should all be in his power and we should find him indeed a Red Demon. We should all be in ashes and you, Mr. Stove, would be broken and melted into rough pieces like dull stones. I speak feelingly because had it not been for my thick bark I would never have lived till the lumbermen came to make me into something useful. I was born in British Columbia within sight of the Pacific Ocean. There was no British Columbia then, for that was nearly three hundred years ago, and in that long lifetime I saw the Red Demon making war on my brothers many times, and once I was nearly killed myself. Sometimes lightning started the Red Demon on the war-path, sometimes a settler's clearing fire got away from his clearing and rushed through the woods, sometimes it was a spark from a logging

engine, but the time I speak of the Red Demon was let loose by a merry camping party. They set up their camp one evening about a quarter of a mile from where I stood. As I stood 250 feet high I could see over some smaller trees in front and I could hear what was going on in the camp. After spending the night the party got into their light wagon again in the morning to go away. I heard one man say: 'Are you sure the camp-fire is out? Throw a pail of water on it.' Another answered, 'That's too much trouble. I guess it is out, and anyway we'll take a chance.' They got into their wagon and drove away. Soon the wind arose and blew the embers into a blaze, and a little later a sudden gust drove the sparks into a heap of dead leaves and dried twigs. From that the flame attacked a dead cedar tree, and in half an hour after the camping party had left a forest fire had started. The wind drove the flames up the valley toward a small settlement. The settlers left their work and tried to beat out the fire with wet bags and green branches, and to dig a trench across its path but all to no avail. The fire caught the fences and out-buildings, then the barns and the houses. The domestic animals, cows, horses, and pigs rushed about trying to get out of their enclosures. Some were suffocated in their pens or pastures. Others broke loose and ran bellowing and screaming ahead of the flames. Some escaped, and some were overtaken and were burned along with the wild animals of the woods. But the plight of the settlers was the more pitiable. Seeing that their homes were doomed the men and women caught up their young children, and, with their other children about them, rushed

ahead of the fire to a small creek or inlet of the sea. They could not reach the open sea-coast because the fire was between them and it. They stood on the shore of this inlet as long as they could and then waded out into the water and put wet sacks and blankets over their heads to keep themselves from being scorched by the flames. Here a new danger confronted them. The intense heat of the fire caused the breeze to become a hurricane which lashed the water of the inlet into high waves. These swept some of the poor settlers off their feet and they were drowned. One woman was too ill to stand and her relatives put her into the only boat at hand and endeavoured to escape by rowing down the inlet toward the sea, but the boat capsized in the waves and the sick woman and all the others in the boat were drowned. Altogether out of that little settlement fifteen people were suffocated or drowned. That evening those who escaped, the fire having passed by, came out of the water and lay down on the sand. Next morning they made their way along the shore until they came to another small settlement that had escaped. They could not go back to their own settlement for their homes were all in ashes, and all their food and clothing and furniture had disappeared."

"That was certainly a terrible event" said the Stove, but another fire like that with such a dreadful loss of life might not occur in all North America in the next hundred years."

"Alas!" said the Yellow Birch in the desk nearest the Stove, "in my home in northern Ontario 72 people lost their lives in the year 1911 and at least 224 more (for the exact total was never known) in

1916. That was twice in six years and in only one part of Canada. And in Minnesota in 1917 more than 500 perished in a forest fire. So you see that what Douglas Fir saw was only too common. Then in every case there was the great loss of property, through which people who did save their lives were reduced to poverty. You now understand why all trees dread the Red Demon."

"You said you were nearly destroyed yourself on that occasion," said the Stove addressing Douglas Fir.

"Yes, as I indicated, the wind was not in my direction but the fire worked over towards me and burned deeply into my bark, but fortunately it was so thick the fire did not reach my vitals. It was as if a man had his coat burned but was saved himself. Some of the younger trees with thinner bark were killed outright. It was a little while after that that the lumbermen came and cut down the trees that had been left by the fire. They used axes at first and then a great saw, for I was eight feet through and chopping would have been a wasteful job. After we were on the ground they cut us up into great logs and then chains were fixed around one end of each log. I saw then for the first time a great wire stretched overhead like a railway track in the air. On this was a pulley attached to a wheel, and in an instant a great hook came down, caught the chain on the end of the log, and, before we could think, we were hoisted high up and were rushing through the air close up to the wire. At the end of the wire we were let down gently on to a railway car, and as soon as the train of cars was full of logs we were whisked off on the crookedest

little railway imaginable, all bumps and jolts, and at the end dumped off with a splash into a little arm of the sea like the one in which the poor settlers had taken shelter. Then we were hauled up to the saws and cut into beams and boards—and here I am.”

“Douglas Fir had a more exciting time than the others who have told their tales” said the Stove, “but our friend Yellow Birch here seems to have seen dreadful devastation. Let us hear what further he has to say.”

“I did indeed come from a land which suffered from forest fires” said Yellow Birch, when thus addressed by name “and it was on account of the prevalence of fires that I was cut. The fire did not reach our township, but the lumbermen were afraid their property would be burned and so they cut all the trees on their limits. The most of the trees were Spruce and only a few were my brothers, the Yellow Birches. This was not to be regretted, because, as all trees know, Birch is not a good ‘floater.’ It soon gets waterlogged and sinks to the bottom of the river, where it is lost to the lumberman. You see, Mr. Stove, that the Pines, Spruces, and Douglas Fir are all cone-bearing trees or conifers, sometimes called needle-leaved trees or *softwoods*, while Birches, Maples, and Oaks are broad-leaved trees, sometimes called *hardwoods*. The conifers, being light, float well, while the broad-leaved trees are so heavy that after they have been a little time soaking in water they sink. The river-drivers chained me between two spruce logs and so I floated safely down to the saw-mill. After being sawn up into boards I was sent a long way by train to a furniture factory,

where I was sawed still further and planed and polished and so turned into a desk."

"And was your bark made into a canoe?" pursued the inquisitive Stove.

"No, my bark was too thick and brittle for that. It is the bark of my cousin Paper Birch, sometimes called Canoe Birch, which is made into canoes. He grows all over Canada, so that wherever the Indians are they need not be without canoes."

"I notice that the teacher is proud of his desk and is careful to keep it free from ink spots" said the Stove, "and I have also often wondered what causes its surface to be marked by little knotty spots resembling birds' eyes. If you, Mr. Desk, have a tongue as well as eyes, let us hear it."

"I am Sugar Maple" returned the wood of the Desk, "sometimes called Hard Maple."

"Just a moment!" cried the Stove, "Is not the leaf of the Sugar Maple the national emblem of Canada? Do not the pupils often sing, especially on Friday afternoons, 'The Maple Leaf Forever?'"

"That is true," said the Sugar Maple, "and now that you have mentioned it I will relate something of that patriotic song which otherwise my modesty would have prevented me mentioning. I was a little seedling many years ago—more than one hundred years ago—in a piece of low, rich land near lake Ontario, for the Maples, and Oaks, and Beeches love good land. There were plenty of Indians about in those days and only a few white men. After a while more white people came and built houses and the place was called York, Canada West. As there were no sidewalks and no paved streets the visitors who came to see it, remembering the

beautiful old city of York in England, called this one in contempt 'Little Muddy York.' But after a while it was given an Indian name, Toronto, and for many years it got larger and larger, till at last it had more people and more homes than old York. At times woodsmen came and chopped down the older trees to burn, but the grove where I stood was not destroyed. After the land was divided by fences we stood first in a farm, then in a garden, and later the spot was turned into a park and nursery for growing trees. It was a beautiful place and citizens used to come to walk there and enjoy the fresh air under the trees. One pleasant autumn afternoon two friends were walking up and down the path when I dropped a beautiful autumn leaf, coloured with red and gold and green, on the shoulder of one of the men. He picked it off and said 'What a beautiful leaf, John.' 'It is indeed,' said the other. 'Alexander,' he continued, 'you are a poet and you must write a poem about our great country and the beautiful Maple Leaf, its emblem.' 'I will try,' responded the one called Alexander, for it was Mr. Alexander Muir, a public school teacher of Toronto; and that was how the poem 'The Maple Leaf Forever' came to be written."

"You are forgetting yourself," said the Stove. "You call yourself a Sugar Maple. Was sugar ever made from your sap?"

"Yes, many pounds of it. When I was small the Indians tapped my older brothers and made sugar to last them through the winter. Later when the settlers had a weary struggle for existence, without railways, without roads, without factories, and without many things people now have, they made

barrels full of sugar and many a time was I tapped as my scarred trunk used to show. When I was chopped down the workmen found that I was bird's-eye maple and I was taken to a saw-mill and sawed into boards from which this desk was made."

"And how does one Sugar Maple get that beautiful bird's-eye grain when others do not?" asked the Yellow Birch, which had often admired its handsome neighbour.

"That is a secret," responded the Maple, "which our family never reveals. I may say, however, that just as trials and adversity bravely met put strength into the fibre of men and women, so the storms and stresses of tree life have something to do with the grain of their wood."

"What other troubles does a tree have besides the fear of Fire?" asked the Stove.

"Insects are very troublesome enemies," returned the Sugar Maple. "Many of my brothers have been killed by insects."

"What remedy is there for that pest?"

"Men can help us a great deal. For example, they can breed good insects and set them free in the forests to devour the evil insects. But that is only for scientists and government departments. What all people and particularly all boys and girls can do to help trees fight their insect enemies is to protect the birds. Some little birds eat in one day as many as fifteen hundred bad insects, insects that are not only bad for trees but bad also for the farmer's crops, and yet boys and girls often kill birds thoughtlessly, or smash their eggs. Cats, too, are allowed to grow into wicked bird-eaters. Many a fine tree has died because there were not enough birds

left in the district to eat the beetles and borers and other insects that sting us and suck us to death."

"This has been an instructive night," said the Stove. "I never learned so much in one talk before. It is now morning, I hear the caretaker coming and there is one question I desire to ask you before it is too late. If all the trees could talk to human beings, as you can talk to me, what would you say to them? What is the warning you would din into their ears?"

And the White Pine in the door said "Protect us from fire till we are full grown and then harvest us that we may provide men with food, and books, and implements, and vehicles, and furniture, and buildings. Don't let us be turned to ashes, and don't let us die of old age to fall and rot."

And all the others cried just before the caretaker opened the door "Protect us from Fire."



CANADIAN FOREST TREES

BROAD-LEAVED TREES

THE MAPLES

The maple leaf is the symbol of Canada and the tree is well known. There are nine species of maple in Canada but they can all be distinguished from other species of trees by the shape of the leaf, which has three to five, pointed lobes. In Ontario and



Sugar maple



Silver maple



Manitoba maple

eastward the three chief species are the hard or sugar maple, the soft or red maple, and the silver or white maple. The leaf of the hard maple has five lobes and the edge of the leaf is entire, that is, it is not broken up into fine teeth. In the leaf of the red

maple the two lower lobes nearest the stem are small and the edge of the leaf is serrated or cut into small teeth like those of a saw. The leaf of the silver maple is much like that of the red maple but the notches between the lobes are narrower and come to a sharp point. In the Prairie Provinces the only maple growing naturally is the Manitoba or ash-leaved maple. Some of the leaflets are shaped like those of the maple and some resemble those of the ash, and the leaf is compound as explained under Walnut. In British Columbia there are the broad-leaved maple, with leaves somewhat like those of the hard maple but much larger, and the vine maple a small tree growing under the shelter of others and with leaves somewhat circular, and having seven to nine sharp-pointed, sharp-toothed lobes. Maple wood is used for flooring and furniture. The wood with the peculiar figures called bird's eye is particularly handsome. Maple sugar made from the sap of the hard maple or sugar maple is known to most boys and girls.

THE OAKS

There are twelve species of oak in Canada but most of them are confined to the peninsula forming the southwestern part of Ontario. The oaks are distinguished by their leaves, longer than broad, divided into several lobes, and by the acorns borne in cups. The oaks are divided into two main groups; the white oaks, with rounded lobes on the leaves and sweet acorns; and the black oaks (which include the red oaks) with the lobes of the leaves pointed and bristle-tipped and with bitter acorns.

The typical white oak which grows in southern Ontario and Quebec has leaves from five to nine inches long and three to four inches wide, the lobes are rounded or blunt and the notches are fairly deep, most of them one-half inch and over. The most widely distributed of the white oaks or any

*White oak**Bur oak**Red oak*

of the oaks is the bur or mossycup oak, which is found from Nova Scotia to Manitoba and considerably farther north than other oaks. The leaves vary greatly in size and outline but their characteristics are well marked. The long, deep notches into the leaf on each side of the main rib, which almost meet and cut the leaf in two, are a good distinguishing feature. The acorns are large and the scales on the edge of the cup are elongated and form a distinct fringe. The Garry oak is found only in British Columbia and is the only oak there. Its leaves are like those of the white oak. The chestnut oak is found only in the extreme southwestern part of Ontario. The leaves resemble those of the chestnut tree but the points on the margin are more rounded and the outline of the leaf wavy rather than toothed.

Of the black oaks, the one generally known as the red oak is most widely distributed. It is found from Nova Scotia to the east shore of lake Superior, and as far north as the height of land between the Great Lakes and James bay in Ontario. The leaves have from nine to thirteen lobes, more than most oaks, and taper to a sharp point. The bark is generally smooth. The scarlet oak, black oak, and pin oak, occur in southwestern Ontario. The lobes of the leaves are bristle-pointed and the bark rougher than that of the red oak. The white oak is the most valuable species and the wood is used for making furniture, for flooring, and for barrels and casks to hold liquids. It is now so scarce that most of the oak used in the manufactures is imported.

THE WALNUTS

There are only two species of walnut found in Canada, the black walnut, and the white walnut or butternut. The leaves of the walnut are compound, that is, there are a number of leaflets on each stem. Watch how the leaves drop from the tree. A leaf includes the stem and leaflets from the point where it separates from the tree in the fall of the year. The nut is enclosed in a round, green covering about the size of a small apple. The black walnut is one of the most



Butternut

valuable trees we have but unfortunately is one of the scarcest. It grows naturally only in southwestern Ontario and is found now scattered on farms. The wood is hard, dark in colour, and is used for making furniture, cases for organs and pianos, and gun-stocks. The white walnut or butternut may be distinguished from the black walnut by the twigs which are downy and clammy. The nut is longer than broad. The butternut is found from New Brunswick and along the St. Lawrence valley to Georgian bay in Ontario. The wood is soft and light in colour as compared with the black walnut and is used for planking for boats and for interior finish.

THE HICKORIES

There are six species of hickory in Canada, but none of them are found west of Ontario. They are related to the walnuts and like them have compound leaves, though smaller, and smaller nuts. The bitternut hickory is one of the most generally distributed. Its bark is grey and rough, recent shoots are an orange-green colour and dotted, and the nut is bitter. Its winter buds are sulphur-yellow in colour. The shagbark hickory is named and distinguished by its bark flaking or shagging loose in plates which are free at both ends, and by its sweet nuts. The wood is among the toughest, strongest, and hardest in Canada, and is used chiefly for vehicles, tool-handles, agricultural implements, machinery parts and sporting goods.



Bitternut hickory

THE ASHES

There are four species of ash in Canada. The leaves of the ash are compound and they grow in pairs, one on each side of the twig, not alternately like those of the walnut or hickory, and its fruit is a winged seed. The white ash is the most valuable and is found growing from Nova Scotia to southwestern Ontario. The twigs are coarse, and shiny, and the leaflets have stems. The red ash is a smaller tree and has downy twigs. The black ash has all but the terminal leaflet stemless. The green ash, a variety of the red ash, is found from western Quebec to Alberta. It differs from the red ash mainly in the smoothness of its branches, leaves and stems. The blue ash is confined to southwestern Ontario in the counties bordering on lakes Erie and St. Clair,

but is not very common even there. It can be distinguished from the other ashes by its rather heavy branchlets which are more or less four-sided in cross-section. The wood of the ashes is noted for its toughness and elasticity. The more valuable species, particularly the white ash, are used for vehicle stock, tool-handles, and interior finish. The mountain ash is not a true ash and is distinguished by its numerous small-toothed leaflets and its red berries.



THE ELMS

There are three species of elm native to Canada. The leaves are not compound and the veins run off from the midrib to the outer edge like the barbs of a feather, or to employ the usual terms, the leaves are simple and pinnate. The white elm is the common one with a great spreading top, seen standing so grandly in meadows. The twigs are smooth. The rock elm has corky ridges on the twigs which easily distinguish it. The red or slippery elm has stouter twigs than the white elm and they and the inner bark are mucilaginous. The buds have a heavy covering of reddish-brown hair. The rock and red elms are found only in the southern part of Quebec and Ontario but the white elm grows as far west as the province of Saskatchewan. Elm is used for making furniture, but principally for barrels, boxes, and fruit packages.



*White
Elm*

THE BIRCHES

The birch bark canoe of the Indian has made the birch well known in Canadian song and story. There are nine species of birch in Canada. The bark of all birches, which is smooth and in colour either brown or white, is marked with long, horizontal slits or lenticels, and on young trees of most species can be separated into papery layers. The seeds are produced in small scaly cones. The leaves are simple and pinnate. There are two white birches, so called from the colour of their bark, one

the well known paper or canoe birch, which grows to a large tree, and is found from the Atlantic to the Pacific. The white birch, a smaller tree, is found in



*Paper
Birch*

the Maritime Provinces and westward to eastern Ontario. The leaves are triangular in outline with a long, tapering point. The yellow birch is found from the Atlantic to the lake of the Woods and is the largest birch in Canada. Its name comes from its yellowish, straw-coloured bark. Sweet or cherry birch, which comes into Canada only at a few places in southern Ontario and Quebec, has darker bark, which is sweet and aromatic. Western birch, which is a large tree and has brown bark, is chiefly found in southwestern British Columbia. Two smaller birches, the Alaska and mountain birches, are found from Saskatchewan westward. The wood of the larger birches is used for making furniture, interior finish and veneers, and of the white birches for spools, bobbins, clothes-pins, and small woodenware generally.

THE CHERRIES

There are three species of cherry found in Eastern Canada, the black, red, and choke cherries. The black cherry is the largest tree with long, narrow leaves having fine teeth; and dark fruit. The red cherry is a smaller tree, and has red fruit and lighter bark. The choke cherry has dark bark and rather broad and blunt leaves. It does not grow as tall as the others. The fruit is dark-coloured, with peculiar

astriugent properties, which cause the "choking" sensation after eating it. A western choke cherry is found on the coast of British Columbia and on Vancouver Island. There is another cherry in British Columbia, the bitter cherry, which has dark, bitter fruit. The twigs are bright red as contrasted with the light brown of the choke cherry.

THE BEECH

Only one species of beech is found in Canada and it grows from Nova Scotia to lake Superior. The beech is readily recognized by its three-angled nuts, in a spiny covering, its smooth, grey bark, and the long, pointed, lance-shaped buds. The leaves are simple, pinnate, and coarsely toothed. The wood is used for flooring, furniture, and a variety of smaller articles.



Beech

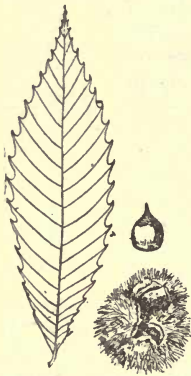


*Bird
Cherry*

THE POPLARS

The poplar is distributed all over Canada and there are seven species that are native. The aspen poplar, distinguished by its almost circular, fine-toothed leaves, which on account of the flattening of the stems literally tremble in the slightest breeze, is the most widely distributed. The large-toothed aspen, with larger leaves more coarsely toothed, is not found

west of Ontario. The balsam poplar, with larger, pointed leaves, and buds covered with a sticky gum, is almost as widely distributed as the aspen poplar.



Chestnut



Basswood

The cottonwood having broad leaves with square base, triangular in outline and coarsely toothed, is found scattered in river-bottoms, in the southern part of both Eastern and Western Canada. There are two poplars, lanceleaf cottonwood, and narrowleaf cottonwood, with long, narrow leaves, in southern Alberta and Saskatchewan. The black cottonwood on the coast of British Columbia has leaves like the balsam poplar. The wood of poplar is not very valuable and is used for fuel, for making excelsior and pulp and, where better woods are not available, for lumber and various purposes. The Lombardy poplar which grows a tall, narrow tree, and the silver poplar, with leaves shaped like those of the maple, green and shiny on top and white and woolly beneath, are introduced from foreign countries.

THE CHESTNUT

The chestnut grows in the southern part of Ontario, and is now very scarce. A disease which came over from Europe, the chestnut tree blight, is fast destroying what is left. The leaves are simple, six to eight inches long, and the margin is coarsely toothed with curved teeth, like those of a circular saw. The nuts are enclosed in large burs. The wood is mainly used for veneer cores, pianos, and doors. The horse chestnut is a different species and is not native to Canada.

THE BASSWOOD

The basswood is found from the Atlantic coast westward to southern Manitoba. It is easily distinguished in the summer by its large heart-shaped leaves, yellow flowers, and round hard fruit, about the size of peas. The dark-red, sometimes green, smooth lop-sided or "hump-backed" buds are one of this tree's best distinguishing features in the winter. The wood is light, of fine texture, and is used in cooperage, box-making, and for panelling in carriages.

THE CONIFERS, OR NEEDLE-LEAVED TREES

THE PINES

There are nine species of pine in Canada, three in the east, five in the west, and one crossing the whole northern part of Canada to British Columbia. The pines are divided into two groups; soft or white pines with their leaves in bundles of fives and their

cones hanging downward and with thin scales; and hard pines with their leaves in bundles of two or three and their cone scales thick and woody. The



White
Pine

white pine of the eastern provinces is the most important and was for many years the chief lumber used in the construction of houses. The bark is dark and rough, and the wood almost white. It is the only pine with five needles in a bundle native to Eastern Canada. The western white pine is a different species confined to British Columbia and has larger cones, though otherwise it resembles the eastern species. The red pine of Eastern Canada

has long leaves, two in a bundle, reddish bark and wood, and is not found west of southeastern Manitoba. The western yellow pine is found only in British Columbia, and has long leaves in clusters of threes, or occasionally twos, and reddish bark. Jack pine grows all across Canada into Alberta where it is finally replaced by lodgepole pine, which is found throughout British Columbia. Both have their short leaves in bundles of twos and the cones are small and curved. The foliage of the lodgepole pine is darker and the leaves not scattered along the twigs so much as in the eastern jack pine. There is more jack pine used for railway ties in Canada than any other species of tree.

THE SPRUCES

There is more spruce cut into lumber in Canada than any other species and it has also the first place

in the making of pulp and paper. There are five species of spruce in Canada. The leaves are short and generally arranged all round the twigs, at any rate they do not spread flat, like the leaves of balsam fir and hemlock. The white spruce extends from the Atlantic coast to the Yukon but does not reach the Pacific coast. The leaves are sharp-pointed and have a peculiar skunk-like odour when crushed. The cones are from one and a half to two inches long. The Engelmann spruce, very similar to the white spruce, is found in Alberta, British Columbia, and the Yukon. The black spruce grows from the Atlantic to the Yukon and is characteristic of low, wet places. The leaves are short and blunt-pointed, the cone scales have a toothed margin and the end twigs are slightly coated with a rusty-coloured hair. Red spruce does not occur west of the eastern part of Quebec. Sitka spruce, found only in British Columbia, is the large spruce of the coast district. The leaves are stiff, thick and sharp-pointed so that they feel as if piercing the hand when a twig is grasped tightly.



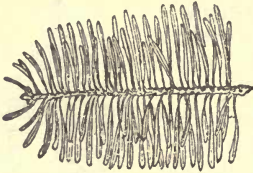
White
Spruce

THE FIRS

There are five species of tree called fir in Canada, but one of these, the Douglas fir of British Columbia, is not a true fir.

The other four species are designated balsam fir. The leaves are flat and blunt-pointed, and are two-ranked, that is, they spread out from opposite sides

of the twigs. The cones stand erect and the scales of the cones are shed at the same time as the seed, leaving the stem standing bare. The bark is smooth



Balsam fir



Douglas fir

but with the characteristic blisters filled with balsam. The eastern balsam fir is found from the Atlantic to the Yukon. There are two balsam firs in British Columbia growing generally at low levels—the lowland fir, with yellowish-greenish cones, and the amabilis fir, with purple cones. The alpine fir is found at higher elevations and has purple cones. Balsam fir timber is used as lumber and pulpwood.

The Douglas fir, found only in British Columbia and Alberta, resembles the balsam fir in the earlier years of its growth, but later the bark becomes very thick and deeply furrowed. The cones hang down instead of standing erect as in the balsam fir and have conspicuous three-pointed bracts attached to the back of the cone scales. The trees grow to enormous size and the timber is one of the most valuable in Canada. It is used for heavy framework, for buildings and cars, for bridges, docks, interior finish, paving blocks, wooden pipes, railway ties and many other purposes.

HEMLOCK

The hemlocks have two-ranked, flat leaves, like the balsam firs, but the leaves are generally smaller and have a distinct small stem. The bark is rough. The cones are very small and hang downward. The eastern hemlock is found from Nova Scotia to the western part of Ontario. There are two hemlocks in British Columbia, the western hemlock and the mountain hemlock. The wood of eastern hemlock is poor but is used for lumber and ties. Western hemlock is much better in quality. Tannin, used in tanning leather, is obtained from the bark of the hemlock and many trees have been cut down simply to get the bark for this purpose.

*Hemlock*

THE LARCHES

The larches are the only species of coniferous tree in Canada which shed all their leaves in the fall. The soft leaves are borne in clusters of about twelve to forty at the end of short knobs standing out from the twigs. The eastern larch, tamarack, or hackmatack, is found from Labrador to the Rocky mountains. The western larch is found in southern British Columbia and Alberta, and the alpine larch in the same

*Tamarack*

districts but high up in the mountains. The wood is hard and durable and is used for structural timbers and railway ties.

THE CEDARS

There are two species of cedar in Canada, one growing from the Atlantic to Manitoba, and the other confined to British Columbia. The bark is thin and shreds in strips, and the foliage consists of tiny, over-lapping, scale-like evergreen leaves. The cones are very small. Cedar wood is light and durable and is used for shingles, poles, posts, railway ties, and in buildings. What is sometimes called yellow cedar on the coast of British Columbia belongs to a different genus and is generally called yellow cypress. The cones are not so narrow and elongated as those of the cedars previously described, and the wood is harder and heavier and has not the same characteristic odour.



*White
Cedar*

FOREST ENEMIES

Fires and insects are the great enemies of the forest. Let all persons—men and women, boys and girls—be careful with fire when they go into the woods for business or pleasure, and forest fires will disappear. The birds are the greatest protectors of the forest against insects. They are little, feathered policemen, always on the watch for bad insects. Every boy and girl should protect the birds, which do so much for Canada's forests and farms.

acuse, N. Y.
T. JAN. 21, 1908

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